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MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
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(54) Title: GENES UPREGULATED IN A TOMATO PLANT HAVING AN INCREASED ANTHOCYANIN CONTENT PHE-  
NOTYPE

(57) Abstract: Tomato anthocyanin vacuolar transporter ("MTP77") and chalcone isomerase ("MTP96") are up-regulated in tomato plants that overexpress the *ANT1* gene. Plant transformation vectors comprising isolated MTP77 or MTP96 polynucleotides can be made to generate transgenic plants having increased anthocyanin content relative to control plants.

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- (75) Inventors/Applicants (for US only): **CLENDENNEN, Stephanie, K.** [US/US]; P.O. Box 6332, Kingsport, Tennessee 37663 (US). **LIGHTNER, Jonathan** [US/US]; 28750 S. Heisinger Lane, Mulino, Oregon 97042 (US).
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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/12826

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : C12N 15/05, 15/09, 15/29, 15/52, 15/82; A01H 5/00 US CL : 800/278, 282, 298; 435/419, 320.1; 536/23.1, 23.2, 23.6 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 800/278, 282, 298; 435/419, 320.1; 536/23.1, 23.2, 23.6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,054,636 (FADER) 25 April 2000 (25.04.2000), column 9, lines 52-62; column 12 lines 35-61; column 14 lines 7-21; columns 14-17; and columns 37-38.	5,7
Y		1-5,7-8
Y	ISLAM M. Anthocyanin Compositions in Sweetpotato (Ipomoea batatas L.) Leaves. Biosci. Biotechnol. Biochem., 2002, Vol 66, No. 11, pages 2483-2486, especially page 2483	8
Y	DEBEAUJON I. et al., The TRANSPARENT TESTA12 Gene of Arabidopsis Encodes a Multidrug Secondary Transporter-like Protein Required for Flavonoid Sequestration in Vacuoles of the Seed Coat Endothelium. The Plant Cell, April 2000, Vol. 13, pages 853-871; see entire document, especially page 855 column 1 line 30 to column 2 line6 and Results section pages 857-863.	1-6,8
Y	DONG X. Functional Conservation of Plant Secondary Metabolic Enzymes Revealed by Complementation of Arabidopsis Flavonoid Mutants with Maize Genes. Plant Physiology, September 2001, Vol. 127, pages 46-57; see entire document.	1-5,7
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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"A"	document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Russell Kallis Telephone No. (571) 272-1600

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## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 6,608,246 B1 (BOVY et al) 19 August 2005 (19.08.2005), see claims.	1-5,7 — 1-5,7-8

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Continuation of B. FIELDS SEARCHED Item 3:

STN agricola biosis embase caplus

WEST search terms: ANTI, anthocyanin, chalcone isomerase, anthocyanin transporter, transformation, plant

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